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Introduction to Commutative Algebra and algebraic Geometry
Presence Exercise to Sheet 9

Exercise 1.
Let K be an algebraically closed field. Determine the algebra of regular functions $\mathcal{O}(U_i)$ for the following open sets U_i:

- $U_1 = K$,
- $U_2 = K \setminus \{0, 1\}$,
- $U_3 = (X \setminus V(f)) \subset X$, where $X = V(x \cdot y \cdot z, x^2 - xy^3) \subset K^3$ and $f = x^2 + y^2 + z^2 - 1 \in K[x, y, z]$.